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Abstract

Industrial robots have been increasingly used for decades and the International Federation of Robotics predicts that 1.3 million more of such humanoids will be installed in factories across the globe between 2015 and 2018. While robots are deemed beneficial for industrial production, they pose a serious threat to our health and safety. Robots have killed many people and gravely injured numerous others in different countries. Policymakers around the world remain largely unmoved about resolving the uncertainty over the specificity of which persons should go on trial for such killings. This Article examines the principles of common law governing manslaughter by criminal negligence with particular reference to Australia; however, it will generally apply to other common law countries as well. It finds that while it would be theoretically possible to identify the potential accused of workplace deaths caused by robots, we consider that the common law identification doctrine in practice will be a bar to successful prosecutions against corporate employers given the specific complexities associated with the usage of industrial robots. This Article therefore submits a recommendation with justifications for dealing with this serious offence by enacting appropriate manslaughter law for the effective regulation of robot provoked fatalities.

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S.M. Solaiman



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CORPORATE MANSLAUGHTER BY INDUSTRIAL ROBOTS AT
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COMMON LAW IN AUSTRALIA?

S.M. Solaiman*

ABSTRACT

Industrial robots have been increasingly used for decades and the International Federation of Robotics predicts that 1.3 million more of such humanoids will be installed in factories across the globe between 2015 and 2018. While robots are deemed beneficial for industrial production, they pose a serious threat to our health and safety. Robots have killed many people and gravely injured numerous others in different countries. Policymakers around the world remain largely unmoved about resolving the uncertainty over the specificity of which persons should go on trial for such killings. This Article examines the principles of common law governing manslaughter by criminal negligence with particular reference to Australia; however, it will generally apply to other common law countries as well. It finds that while it would be theoretically possible to identify the potential accused of workplace deaths caused by robots, we consider that the common law identification doctrine in practice will be a bar to successful prosecutions against corporate employers given the specific complexities associated with the usage of industrial robots. This Article therefore submits a recommendation with justifications for dealing with this serious offence by enacting appropriate manslaughter law for the effective regulation of robot-provoked fatalities.

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I. INTRODUCTION

A 2015 report of the Foundation for Responsible Robotics (FRR) reveals that there are 1.5 million industrial robots and 12 million service sector robots presently employed across the globe.¹ A total of 229,261 industrial robots (IRs, and IR in singular) were sold in 2014 alone breaking all the previous records and evidencing an increase of 29% from 2013, while about 1.3 million more of such humanoids are expected to be installed in factories across the globe between 2015 and 2018.² Currently, markets have a strong demand for “robust, flexible and efficient robots with a certain level of autonomy.”³ It can be reasonably anticipated that our daily life in many respects will be pervaded by “sophisticated robots” which will possess much higher autonomy, intelligence and interconnectivity in the future compared to their present equivalents.⁴ These robots will generally be large and capable of assaulting humans around them causing deaths and injuries, as they have already started doing so in many countries, and such incidents warrant legal redress.⁵ Over the past 30 years, robots have killed at least 26 people in the workplace in the United States alone.⁶ Perhaps more alarmingly, the United Kingdom has witnessed 77 accidents in 2005 alone in which “people have been crushed, hit on the head, welded and even had molten aluminium poured over them by robots.”⁷ On June 29, 2015, a 22-year-old worker at a Volkswagen factory in Frankfurt was killed by a stationary robot while he

¹ Clive Cookson, *Scientists Appeal for Ethical Use of Robots*, THE FINANCIAL TIMES (Dec. 10, 2015), <https://www.ft.com/content/fee8bacc-9f37-11e5-8613-08e211ea5317>.

² *Industrial Robot Statistics*, INT’L FED’N OF ROBOTICS, <http://www.ifr.org/industrial-robots/statistics/> (last visited Oct. 22, 2015).

³ Tomislav Stipancic, Bojan Jerbic & Petar Curkovic, *A Context-Aware Approach in Realization of Socially Intelligent Industrial Robots*, 37 ROBOTICS & COMPUTER ANIMATED MANUFACTURING 79, 79 (2016).

⁴ F. Patrick Hubbard, “*Sophisticated Robots*”: *Balancing Liability, Regulation, and Innovation*, 66 FLA. L. REV. 1803, 1806 (2014).

⁵ *Id.*

⁶ Justin Huggler, *Robot Kills Man at Volkswagen Plant in Germany*, THE TELEGRAPH (July 2, 2015), <http://www.telegraph.co.uk/news/worldnews/europe/germany/11712513/Robot-kills-man-at-Volkswagen-plant-in-Germany.html>.

⁷ Rick Noack, *A Robot Killed a Factory Worker in Germany. So Who Should Go On Trial?*, WASH. POST (July 2, 2015), <https://www.washingtonpost.com/news/worldviews/wp/2015/07/02/a-robot-killed-a-factory-worker-in-germany-so-who-should-go-on-trial/>.

was trying to set it up.⁸ Conceivably, they will continue to cause harm alongside providing benefit to us.

Workplace efficiency is important; however, more important is workers' safety. There is little dispute from a practical perspective that liability incentivizes safety,⁹ which is why Occupational Health and Safety (OHS) laws aim to set forth strict regulations worldwide. The issue at hand is directly related to OHS entailing regulation, which needs to be appropriate, clear, rational and effective in terms of protecting humans while we are approaching a society where humans will coexist with humanoids including IRs.¹⁰

The facts and figures about IRs signal a future trend towards employing these humanoids across industries. This begs an effective resolution of existing and potential disputes as to the criminal liability for manslaughter arising out of workplace deaths caused by robots. While searching for persons to be liable for such deaths, this Article does not intend to delve into the debate of robots' legal personhood;¹¹ rather it endorses the view that robots are a kind of product—"more precisely, artefacts created by human design and labour, for the purpose of serving identifiable human needs," and therefore are an object of law rather than a subject.¹² The legal science world currently (and consistently) regards robots as no more than "innocent agents or simple instruments of an individual's *mens rea*."¹³ Conferring personhood on software agents like robots "does not seem at present necessary or even opportune."¹⁴ Moreover, it does not seem socially desirable to punish robots instead of the humans behind them who contribute to committing the offence.

⁸ Kukil Bora, *Volkswagen German Plant Accident: Robot Grabs, Crushes Man to Death*, INT'L BUS. TIMES (July 2, 2015), <http://www.ibtimes.com/volkswagen-german-plant-accident-robot-grabs-crushes-man-death-1993475>.

⁹ Andrea Bertolini, *Robots as Products: The Case for a Realistic Analysis of Robotic Applications and Liability Rules*, 5(2) LAW, INNOVATION & TECH. 214, 245 (2013). For a detailed discussion of why robots are to be treated as products for liability purposes, see *id.* at 236–39.

¹⁰ It should be noted that Australian current OHS legislation excludes manslaughter liability provisions.

¹¹ The debate of robots' legal personality has been addressed separately: see S.M. Solaiman, *Legal Personality of Robots, Corporations, Idols and Chimpanzees: A Quest for Legitimacy*, 25 ARTIFICIAL INTELLIGENCE & L. (forthcoming 2017).

¹² Bertolini, *supra* note 9, at 235.

¹³ UGO PAGALLO, *THE LAWS OF ROBOTS—CRIMES, CONTRACTS, AND TORTS* 69 (2013).

¹⁴ Giovanni Sartor, *Cognitive Automata and the Law: Electronic Contracting and the Intentionality of Software Agents*, 17(4) ARTIFICIAL INTELLIGENCE & L. 253, 283 (2009).

Robots may not be legally accountable under penal law in the foreseeable future, as “they lack the set of preconditions” for criminal liability.¹⁵

In 1937, Lord Atkin in *Andrews v. DPP* defined “manslaughter” which is now applied to corporations and called “corporate manslaughter.”¹⁶ The offence is obviously committed by a human agent, but it is attributed to corporation due to a specific relationship between such an agent and corporation. Besides regulatory offences (quasi-crimes), a corporation can only be held liable when the offence is virtually committed by individuals who manage and control, and thereby embody, the company.¹⁷

Manslaughter is not a crime of intent, rather more an offence of recklessness or negligence. The conduct of robots causing human deaths affects the fundamental concepts of criminal law, such as culpability warranting punishment.¹⁸ This research chiefly looks for the manslaughter liability of the employer of the victim (the employer) and its officers (together, “the user side”) under criminal law from the viewpoint of OHS. However, brief references to the liability of the user side under OHS and civil laws and the civil liability of the supply side of robots will also be made where appropriate.

Part II briefly discusses robots, corporations and corporate criminal liability. Part III analyses the definitions and constituting elements of manslaughter by criminal negligence (MCN) under the principles of common law and statutory laws as applicable in New South Wales (NSW), a leading common law jurisdiction in Australia. Part IV endeavours to identify the persons who should go on trial for deaths caused by robots at the workplace in light of the legal principles analysed in the preceding Part III. Finally, Part V presents conclusions.

II. ROBOTS, CORPORATIONS AND CORPORATE CRIMINAL LIABILITY

There is no universally accepted definition of the word “robot,” which originated in a 1921 science-fiction play titled *R.U.R.*, when it used the

¹⁵ See PAGALLO, *supra* note 13, at 48, for the reasons in some detail.

¹⁶ (1937) 2 All ER 552, 554–55, as cited in Melanie Pritchard, *Corporate Manslaughter: The Drawing of a New Era?*, 27 HONG KONG L.J. 40, 54 & n.94 (1997).

¹⁷ AMANDA PINTO & MARTIN EVANS, *CORPORATE CRIMINAL LIABILITY* 35 (3d ed. 2013).

¹⁸ PAGALLO, *supra* note 13, at 49.

Czech word “robota,” meaning “heavy labor.”¹⁹ The word “robota” now refers to “machines.”²⁰ *Oxford Dictionary* defines robot as a machine that can do some tasks that a human can do and that works automatically or is controlled by a computer.²¹ The International Organisation for Standardization (ISO) defines “robot” by ISO8373, which describes it as an “automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes, which may be either fixed in place or mobile for use in industrial automation applications.”²² Modern sophisticated robots are complex products, as exemplified by their five characteristics. These are: “size,” “mobility,” “connectivity” (meaning that they can communicate information), “autonomy” (recognising their physical ability to independently respond to external input), and “intelligence” (referring to “the rate at which the machine can receive, evaluate, use, and transmit information, and the extent, if any, to which it can learn from experience and use this learning in determining future responses”).²³ Robots are programmed to perform certain tasks and are designed in a way to achieve the desired result most effectively. In sum, robots are machines that have some degree of autonomy and artificial intelligence to act like humans in specific areas of human labour depending upon their programming. Hence, we definitely recognise the ability of IRs to cause harm including injuring and killing humans around them at work. The cause and source of such an ability is the main concern of this Article.

A “corporation” initially emerged as an association of humans.²⁴ However, while corporations may now be comprised of a single individual, such organisations still need to be corporatised under certain laws in order to

¹⁹ Hubbard, *supra* note 4, at 1806 n.1.

²⁰ *Id.*

²¹ A.S. HORNBY, OXFORD ADVANCED LEARNER’S DICTIONARY OF CURRENT ENGLISH 1107 (Joanna Turnbull et al. eds., 8th ed. 2010).

²² INT’L FED’N OF ROBOTICS, *supra* note 2. It also provides meanings of the words used in the definition: Reprogrammable: whose programmed motions or auxiliary functions may be changed without physical alterations; Multipurpose: capable of being adapted to a different application with physical alterations; Physical alterations: alteration of the mechanical structure or control system except for changes of programming cassettes, ROMs, etc. Axis: direction used to specify the robot motion in a linear or rotary mode. *Id.*

²³ Hubbard, *supra* note 4, at 1807.

²⁴ BLACK’S LAW DICTIONARY (6th ed. 1990).

obtain legal personhood.²⁵ A company, in legal concept, can be defined as “an entity created by law conferring artificial personality to represent individuals who operate it for profits or other purposes with perpetuity in its existence and simplicity in its contractual relations.”²⁶ Pinto and Evans describe a corporation as “merely [a] creature of statute without human characteristics governed by a series of rules.”²⁷ Some enlightened descriptions were provided in an early British corporate law case,²⁸ which was concerned with the concept of “control” and “enemy character” of a company. In *Continental Tyre and Rubber Co. v. Daimler Co.*, Lord Reading CJ pronounced that the fact of incorporation was not just a “technicality.” He stated that:

[A company] is a living thing with a separate existence which cannot be swept aside as a technicality. It is not a mere name or mask or cloak or device to conceal the identity of persons and it is not suggested that the company was formed for any dishonest or fraudulent purpose. It is a legal body clothed with the form prescribed by the Legislature.²⁹

In his dissenting judgement, Buckley LJ opined that:

The artificial legal person called the corporation has no physical existence. It exists only in contemplation of law. It has neither body, parts, nor passions. It cannot wear weapons nor serve in the wars. It can be neither loyal nor disloyal. It cannot compass treason. It can be neither friend nor enemy. Apart from its corporators it can have neither thoughts, wishes, nor intentions, for it has no mind other than the minds of the corporators. These considerations seem to me essential to bear in mind. . . .³⁰

Replying to Governor Romney’s claim that corporations are people, Elizabeth Warren, a Harvard Law Professor and United States Senator, asserted that “[n]o, . . . corporations are not people. People have hearts. They have kids. They get jobs. They get sick. They thrive. They dance. They live.

²⁵ See, e.g., *Corporations Act 2001* (Cth) s 114 (Austl.); *Companies Act 2006*, c. 2, § 123 (Eng.).

²⁶ S.M. Solaiman, *The Landmark James Hardie Case in Australia: A Wakeup Call for Non-Executive Directors*, 34 *COMPANY LAW* 178, 178 (2013).

²⁷ PINTO & EVANS, *supra* note 17, at 52.

²⁸ *Continental Tyre and Rubber Co., Ltd. v. Daimler Co., Ltd.* [1915] 1 KB 893 (Gr. Brit.).

²⁹ *Id.* at 904.

³⁰ *Id.* at 916.

They love. And they die. And that matters . . . because we don't run this country for corporations, we run it for people."³¹

Even before all of the above assertions, Lord Chancellor Thurlow said in the 18th century: "Did you ever expect a corporation to have a conscience, when it has no soul to be damned, and no body to be kicked?"³²

All of these definitions and descriptions of robots and corporations indisputably depict that robots and corporations are different, not only in the eyes of law, but in fact. Nonetheless, there were and still are arguments against the imposition of criminal sanctions on corporations.³³ Despite such oppositions, the corporate criminal liability is now widely recognised and applied worldwide, exceptions apart,³⁴ whereas robots' legal personality is yet to be conferred.

Although its criminal liability is recognised, a corporation cannot be held responsible for certain crimes;³⁵ however, it can be convicted of manslaughter in common law,³⁶ unless legislation provides otherwise. At the same time, this liability can be imposed by legislation as well. Serving as recent examples, the United Kingdom has enacted the *Corporate Manslaughter and Corporate Homicide Act 2007*; plus, between February 2011 and November 2015, a total of 23 companies were convicted of corporate manslaughter, and the trial of two others is currently underway.³⁷ Similarly, all states and territories in Australia recognise corporate

³¹ Mark Karlin, *Elizabeth Warren: People Have Hearts; Corporations Don't*, BUZZFLASH (Nov. 9, 2015), <http://www.truth-out.org/buzzflash/commentary/elizabeth-warren-people-have-hearts-corporations-don-t/11734-elizabeth-warren-people-have-hearts-corporations-don-t>.

³² John C. Coffee, Jr., *No Soul to Damn: No Body to Kick: An Unscandalized Inquiry into the Problem of Corporate Punishment*, 79 MICH. L. REV. 386, 386 (1981).

³³ For a justification of corporate criminal liability, see PAUL REDMOND, *CORPORATIONS AND FINANCIAL MARKETS LAW* (6th ed. 2013).

³⁴ As a fundamental principle of German law, Germany does not recognise corporate criminal liability, although regulatory fines apply to corporations as an exception under section 30 of the Act on Regulatory Offences. See Gesetz über Ordnungswidrigkeiten [Act on Regulatory Offences] Feb. 19, 1987, BUNDESGESETZBLATT, § 30 (Ger.).

³⁵ For example, corporations cannot commit perjury or bigamy. See *Presidential Security Services of Australia Pty Ltd v Brilley* [2008] NSWCA 204 (Austl.).

³⁶ R v. P & O European Ferries (Dover) Ltd. (1991) 93 Cr App R 73 (Eng.); R v. HM Coroner for East Kent, ex parte Spooner (1987) 88 Cr. App. R. 10 (UK); R v. ICR Haulage Ltd. (1944) 1 KB 551, 556; DAVID BROWN ET AL., *CRIMINAL LAWS* 792–94 (6th ed. 2015).

³⁷ *Corporate Manslaughter Case Tracker*, FIELDFISHER (Nov. 12, 2015), <http://www.fieldfisher.com/media/3694153/corporate-manslaughter-tracker.pdf> [hereinafter FIELDFISHER].

manslaughter liability, which Australian Capital Territory (ACT) has incorporated in its criminal law legislation.³⁸

In NSW, the penalty is prescribed in section 24 of the *Crimes Act 1900*, while its section 19(1)(b) effectively leaves the definitions of manslaughter to be determined by the judiciary, or, in other words, the common law. Hence, NSW follows the common law definition of MCN, and we will analyse that definition and apply it to the scenario involving IRs in order to analyse when the employer corporation, its senior executives, and other employees can be held responsible. Notably, the High Court of Australia (HCA), the highest court of the country, confirmed in *Hamilton v Whitehead* that the common law identification theory, to be discussed further below, applies in Australia.³⁹

Both corporations and individuals can be held liable for manslaughter. However, corporations can theoretically be held liable for manslaughter in all jurisdictions across Australia under the prevailing legal regimes, like many other countries, while an individual's liability for such a heinous offence is recognised throughout the globe. This Article considers the liability of both corporations and individuals in NSW, using the case law of other jurisdictions where appropriate.

III. MANSLAUGHTER—DEFINITIONS AND CONSTITUENT ELEMENTS

An unlawful homicide is one of the most heinous offences in all societies. Such homicides are categorised into murder and manslaughter.⁴⁰ To simply distinguish between these two, murder is generally an intentional and unlawful killing of another person without justification or a valid excuse, whereas manslaughter is causing death of another person unintentionally or intentionally with justification or a valid excuse.⁴¹ In some jurisdictions, such

³⁸ See, e.g., *Criminal Code* (Qld) s 303; *Crimes Act 1900* (NSW) s 18(1)(b); *Crimes Act 1900* (ACT) ss 49A–49E; *Nydam v The Queen* [1977] VR 430; Rick Sarre, Professor at University of South Australia, Sentencing Those Convicted of Industrial Manslaughter, Address at the Sentencing Conference 6–7 (Feb. 6, 2010) (transcript, <http://www.austlii.edu.au/au/journals/ALRS/2010/1.html>).

³⁹ (1988) 166 CLR 121.

⁴⁰ For example, of the *Crimes Act 1900* (NSW) s 18 describes and distinguishes between “murder” and “manslaughter.”

⁴¹ See, e.g., *The Queen v Lavender* (2005) 222 CLR 67 (Austl.); *Lane v R* [2013] NSWCCA 317 (Austl.); *Grant v R* [2014] NSWCCA 67 (Austl.).

as Scotland and South Africa, manslaughter is called “culpable homicide.”⁴² Manslaughter can be an alternative verdict against a murder charge if the elements of murder are not proved beyond reasonable doubt but those of manslaughter are successfully made out instead.⁴³ Manslaughter is subcategorised into two; namely, voluntary manslaughter and involuntary manslaughter, in which the word “voluntary” is attached to the accused’s *act* that caused the victim’s demise.⁴⁴ Compared to involuntary manslaughter, voluntary manslaughter is more violent in that all of the physical and mental elements of murder are satisfied. Nonetheless, the accused’s culpability is downgraded to manslaughter because of successful reliance on a defence called provocation or substantial impairment by abnormality of mind, or excessive self-defence.⁴⁵ Involuntary manslaughter in common law is again subdivided into manslaughter by unlawful and dangerous act (MUDA), and manslaughter by criminal negligence (MCN). As the name itself suggests, MUDA refers to an unintentional killing of another by an intentional or voluntary act that is contrary to criminal law and dangerous as well.⁴⁶ As defined by the HCA in *Wilson v R*, a person commits MUDA “only where an unlawful act gives rise to a belief on the part of a reasonable person that someone is being exposed to an appreciable risk of *serious injury*.”⁴⁷ In our understanding of workplace deaths by robotic hands, MCN is more relevant than MUDA. Thus, this Article explores MCN alone.

A. Manslaughter by Criminal Negligence

MCN is originally a creation of common law though later incorporated into legislation in many jurisdictions.⁴⁸ However, NSW still relies on case

⁴² Corporate Homicide and Corporate Manslaughter Act 2007, c. 19, § 1(5)(b) (Scot.); *State v. Pistorius* 2014 (42) SA 3280 (CC) at 3317, 3330 (S. Afr.).

⁴³ *R v Downs* (1985) 3 NSWLR 312 (Austl.).

⁴⁴ See *Wilson v R* (1992) 174 313 (Austl.); BLACK’S LAW DICTIONARY (6th ed. 1990).

⁴⁵ See, e.g., *Crimes Act 1900* (NSW) s 421 (Austl.); *The Queen v Lavender* (2005) 222 CLR 67 (Austl.); *Lane v R* [2013] NSWCCA 317 (Austl.); *Grant v R* [2014] NSWCCA 67 (Austl.).

⁴⁶ *Wilson v R* (1992) 174 CLR 313, 335 (Brennan, Deane and Dawson, JJ., dissenting) (Austl.); THALIA ANTHONY ET AL., *WALLER & WILLIAMS CRIMINAL LAW: TEXT AND CASES* 347 (12th ed. 2013).

⁴⁷ BROWN ET AL., *supra* note 36, at 771.

⁴⁸ See, e.g., *Criminal Law Consolidated Act 1935* s 14 (S. Austl.); *Crimes Act 1900* (NSW) s 18 (Austl.). See also Guyora Binder, *The Origins of American Felony Murder Rules*, 57 STAN. L. REV. 59 (2005).

law, as the crimes legislation does not provide any definition of this offence. In the 1937 case *Andrews v. DPP*, Lord Atkin created the offence of manslaughter, which NSW now applies to corporations.⁴⁹ This means that the offence of MCN, whether committed by a corporation or a natural person as an individual, is exactly the same crime and is distinguished only by the imputation of the latter's (i.e., the individual's) negligent conduct and mental state to the former due to their existing relationship when it comes to corporate manslaughter. Such an imputation is essential to convict the company under the common law identification doctrine, also known as the theory of directing mind or organic theory (these three names are used interchangeably).⁵⁰

The law of negligence can be traced back to 1883 when Brett MR, in *Heaven v. Pender*, stated in dicta that "whenever one person is by circumstances placed in such a position with regard to another . . . whereby he may cause danger of injury . . . a duty arises to use ordinary care and skill to avoid such danger."⁵¹ However, the principles of modern negligence law were articulated by the House of Lords in 1932 when the law of negligence had embraced the neighbourhood principle formulated by Lord Atkin in *Donoghue v. Stevenson*.⁵² The neighbourhood principle applies to ascertain the existence of duty of care. The principle is that:

The rule that you are to love your neighbour becomes in law, you must not injure your neighbour; and the lawyer's question, Who is my neighbour? . . . You must take reasonable care to avoid acts or omissions which you can reasonably foresee would be likely to injure your neighbour. Who, then, in law is my neighbour? . . . persons who are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called in question.⁵³

Though originated in a civil suit, the House of Lords in *R v. Adomako* held that the ordinary principles of the law of negligence governing civil disputes apply to MCN in the determination of the existence of duty and the

⁴⁹ Pritchard, *supra* note 16, at 54 (citing *Andrews v. DPP* (1937) 2 All ER 552 (HL) 554–55).

⁵⁰ *Tesco Supermarkets Ltd. v. Nattrass* [1972] AC 153 (HL) 170.

⁵¹ (1883) 11 QBD 503, 509.

⁵² [1932] AC 562 (HL) (appeal taken from Scot.).

⁵³ *Id.* at 580.

breach thereof.⁵⁴ Central to MCN is the existence of the common law duty of care, which must be owed by the accused to the victim. The duty of care is required to be legally enforceable although it may not be overtly imposed by legislation, but a mere moral obligation is insufficient.⁵⁵ The duty may exist in various ways; it can be implied by law, stemmed from contract or certain relationships, or voluntarily assumed.⁵⁶

We adopt the elements of MCN as recently applied and analysed by the New South Wales Court of Criminal Appeal (NSWCCA) in the corporate manslaughter case of *Cittadini v R*.⁵⁷ It is pertinent to note that the English Court of Criminal Appeal in *R v. Bateman*,⁵⁸ a leading case involving MCN,⁵⁹ set down a similar set of four requirements which have been reaffirmed by the House of Lords in *R v. Adomako*.⁶⁰ The four elements as directed by the trial judge to the jury and later affirmed by the NSWCCA are as follows:

- i. *Existence of duty of care*: That the accused owed a duty of care to the deceased.
- ii. *Breach of duty of care by negligent conduct*: That the accused was negligent in that, he/she breached the duty of care by his/her act(s) or omission(s), meaning he/she did something that a reasonable person in his/her position would not do or he/she failed to do something that a reasonable person in his/her position would have done.
- iii. *Grossly or wickedly negligent conduct*: That the breach of duty fell so far short of the standard of care that a reasonable person in his/her position would have exercised, and it involved such a risk of death or serious bodily harm as to constitute, 'gross' or 'wicked' negligence and be treated as criminal conduct.

⁵⁴ [1994] UKHL 6 [1995] 1 AC (HL) 171, <http://www.bailii.org/uk/cases/UKHL/1994/6.html> (last visited May 29, 2013). For its application in Australian Law, see also *Burns v The Queen* (2012) 246 CLR 334; *Cittadini v R* [2009] NSWCCA 302.

⁵⁵ See *Jones v. United States*, 308 F.2d 307, 310 (D.C. Cir. 1962); *People v. Chapman*, 28 N.W. 896, 898 (Mich. 1886).

⁵⁶ See *R v Russell* [1933] VLR 59 (Austl.); *R v. Stone & Dobinson* (1977) 1 QB 354 (Eng.).

⁵⁷ [2009] NSWCCA 302, ¶ 29.

⁵⁸ (1925) 19 Cr. App. R. 8 (HL).

⁵⁹ See The Law Reform Commission, CONSULTATION PAPER: INVOLUNTARY MANSLAUGHTER 91 (2007).

⁶⁰ [1994] UKHL 6, [1995] 1 AC (HL) 171, [9], <http://www.bailii.org/uk/cases/UKHL/1994/6.html> (last visited May 29, 2013).

- iv. *Causation*: The act(s)/omission(s) of the accused caused the death of the deceased.⁶¹

These four elements of MCN apply to both natural and artificial persons with respect to criminal liability for workplace deaths in common law jurisdictions unless statutes provide otherwise.⁶² A successful conviction calls for all of the above four elements to be proved by the prosecution beyond reasonable doubt.

B. Proving the Elements of MCN

1. Proving the Existence of a Duty of Care Owed to the Deceased

In order to facilitate the proof of existence of a duty of care, common law has developed some established categories of relationships in which the court shall presume that such a duty exists simply by virtue of those relationships. They include, *inter alia*, the relationship between an employer and its employees and that between a manufacturer and its consumers.⁶³ Employers owe a duty of care to their employees,⁶⁴ and an employer includes both the corporation and its managing director or chief executive.⁶⁵ The employment relation is founded on a contract. Wright J in *R v Pittwood* held that, with regard to a duty of care and a contractual relationship, it is immaterial whether the duty is owed to the company as the employer or to the victim, because a contractual duty in itself is a sufficient basis for criminal liability to arise from omission irrespective of to whom the duty is owed.⁶⁶ On the other hand, the modern law of negligence originated with the recognition of manufacturer's liability for personal injuries to potential users of its products as was the issue and the decision thereon of the House of Lords

⁶¹ *Cittadini v R* [2009] NSWCCA 302, ¶ 29.

⁶² In the United Kingdom, the common law principles were applicable to both natural persons and corporations until the enactment of the Corporate Manslaughter and Homicide Act, 2007, c. 19, §§ 2(6), 20, which aims to exclusively deal with corporate killings. So, corporate manslaughter is governed under this legislation in the United Kingdom.

⁶³ The relationship between manufacturers and their consumers is mentioned because references to manufacturers' civil liability will be made further below.

⁶⁴ *Kondis v State Transp Auth* (1984) 154 CLR 672, ¶¶ 33–35 (Austl.); *Wilsons & Clyde Coal Co. v. English* [1938] AC 57 (HL) (appeal taken from Scot.).

⁶⁵ *R v. DPP ex parte Jones* [2000] Crim. L.R. 858, 859–60.

⁶⁶ (1902) 19 TLR 37, 38.

in *Donoghue v. Stevenson*.⁶⁷ It is therefore clear in common law that both the employer and the manufacturer owe a duty of care to their employees and product users respectively.

Apart from this common law imposition of a duty of care, statutes may ascribe such a duty to anyone, regardless of any relationship.⁶⁸ In circumstances in which neither common law nor statutes have defined the existence of a duty of care, courts will determine the duty on a case-by-case basis, which involves both a question of law and a question of fact. French CJ of the HCA in *Burns v The Queen* pronounced that it is for the judge to resolve the question of law whether a particular set of facts gives rise to a duty of care, whilst the jury will decide the existence of those facts.⁶⁹ So, the liability of individuals who could be potentially liable for MCN apparently committed by an IR would be judged separately in line with the relevant facts surrounding the person and his/her disputed conduct in the light of the four elements of MCN discussed above. However, the neighbourhood principle arguably imposes a duty of care on all of the creators and users of the machine so far as the requirements set forth in the principle as discussed earlier are satisfied.⁷⁰ Australian courts do follow this general principle approach to the determination of the existence of a duty of care and related liabilities.⁷¹

It is worthy of mention that when robots are being made for commercial purposes, any reasonable person involved in the making process must foresee that any defects in the product will injure his/her “neighbour.” It is not necessary that a particular victim’s injury be reasonably foreseeable—it is sufficient that it is reasonably foreseeable that a class of persons could potentially be harmed.⁷² Similarly, reasonable work supervisors must realise that if any safety measures are required to be taken to avoid potential accidents as might have been disclosed by the manufacturer with the product or purchase documents, ignorance of such requirements may eventuate in MCN.

⁶⁷ [1932] AC 562 (HL) (appeal taken from Scot.). See also *Grant v. Australian Knitting Mills* [1935] UKPC 2; *Haynes v. Harwood* [1935] 1 KB 146; *Deyong v. Shenburn* [1946] KB 227; *Farr v. Butters Bros.* [1932] 2 KB 606.

⁶⁸ See *R v Taktak* (1988) 14 NSWLR 22 (Austl.); *Jones v. United States*, 308 F.2d 307, 310 (D.C. Cir. 1962).

⁶⁹ (2012) 246 CLR 334, ¶ 20 (citing *R v Evans (Gemma)* [2009] 1 WLR 1999 [2010] 1 All ER 13, ¶ 39).

⁷⁰ See *Donoghue v. Stevenson* [1932] AC 562 (HL) 580 (appeal taken from Scot.).

⁷¹ See *Jaensch v Coffey* (1983) 155 CLR 549.

⁷² See *Wyong Shire Council v Shirt* (1979) 146 CLR 40, 49 per Mason J (Austl.).

Therefore, we can argue that all individuals related to the creation and operation of an IR along with the employer as well as the manufacturer owe a duty of care to a potential victim of such a robot in the workplace. The existence of a duty of care can thus be easily proved against both corporations and individuals involved in the making and using of errant IRs.

2. *Proving the Breach of a Duty of Care Owed to the Deceased*

French CJ of the HCA in *Burns v The Queen* pronounced that no liability, civil or criminal, arises at common law for negligence unless the negligent conduct involves a breach of a duty of care owed to another.⁷³ The Full Court of the Supreme Court of Victoria in 1977 gave a seminal verdict in *Nydam v R*⁷⁴ regarding the definition of MCN, which was subsequently approved by the HCA in *The Queen v Lavender*⁷⁵ and *Burns v The Queen*.⁷⁶ As espoused in *Nydam v R* by the Full Court of the Supreme Court of Victoria, establishing MCN requires the prosecution to prove that:

In order to establish manslaughter by criminal negligence, it is sufficient if the prosecution shows that the act which caused the death was done by the accused consciously and voluntarily, without any intention of causing death or grievous bodily harm but in circumstances which involved such a great falling short of the standard of care which a reasonable man would have exercised and which involved such a high risk that death or grievous bodily harm would follow that the doing of the act merited criminal punishment.⁷⁷

The Court mentions only “the act,” which inherently includes “the omission” with respect to MCN.⁷⁸ When it comes to “an act” constituting MCN, the action need not be unlawful, but must have been committed negligently and voluntarily.⁷⁹ An act will be regarded as voluntary if it is subject to the control and discretion of the defendant.⁸⁰ The voluntariness of an act is unrelated to its consequence (in MCN, death); rather, it is sufficient

⁷³ (2012) 246 CLR 334, ¶ 20.

⁷⁴ [1977] VR 430, 445.

⁷⁵ (2005) 222 CLR 67, ¶¶ 17, 60, 72, 136.

⁷⁶ (2012) 246 CLR 334, ¶ 19 per French CJ.

⁷⁷ [1997] VR 430, 445.

⁷⁸ See *supra* note 55 and accompanying text, discussing the elements of MCN.

⁷⁹ See *R v Martin* (1983) 32 SASR 419 (Austl.); *R v Tajber* [1986] FCA 459 (Austl.).

⁸⁰ See *Ryan v The Queen* (1967) 121 CLR 205 (Austl.); *R v O'Connor* (1980) 146 CLR 64 (Austl.); *R v Falconer* (1990) 171 CLR 30 (Austl.).

if the accused was conscious of the nature of the act causing the death of the victim or another, and nonetheless chose to commit an act of that nature.⁸¹ A lack of such consciousness or awareness of the nature of the act will render the conduct involuntary; however, the most critical consideration is a lack of exercise of the accused's will power.⁸² The lack of exercise of will power represents negligence in the conduct of the offence. So, in order to satisfy the physical part of the offence, the prosecution will have to prove that the accused committed the act or omission causing death in question without exercising her will power in the circumstances where no defences can be relied upon to avoid liability.

The conduct in breach of the duty needs to be without any intention of causing death or grievous bodily harm,⁸³ showing a great failure to act as a reasonable person causing death of another that justifies criminal penalty (as quoted above).⁸⁴ To further clarify, the Court in *Nydam v R* refers to the accused's appreciation of the "probability" of death or serious bodily harm that merits criminal punishment,⁸⁵ and the HCA has implicitly approved this in *The Queen v Lavender*,⁸⁶ as mentioned above.⁸⁷ "The existence of a reasonably foreseeable risk to safety which is likely to result in serious injury or death is a factor which will be relevant to the assessment of the gravity of the offence," while the degree of foreseeability will be considered in assessing the level of the accused's culpability.⁸⁸

Further, regarding a breach of a duty of care by omission, the House of Lords held in *R v. Miller* that a person may be held liable for homicide for "failing to take measures that lie within one's power to counteract a danger that one has oneself created."⁸⁹ Again, it means a failure to exercise will power. In *DPP v Esso Australia Pty Ltd*, the Supreme Court of Victoria convicted the company and imposed the fine for two failures: failure to

⁸¹ *R v Falconer* (1990) 171 CLR 30 (Austl.); *R v Williamson* (1996) 67 SASR 428 (Austl.).

⁸² See *Ryan v The Queen* (1967) 121 CLR 205 per Barwick CJ (Austl.). See also *R v Schaeffer* (2005) 13 VR 337 (Austl.).

⁸³ This intention may render the offence murder.

⁸⁴ *Nydam v R* [1997] VR 430, 445.

⁸⁵ [1977] VR 430, as cited in DAVID BROWN ET AL., CRIMINAL LAWS—MATERIALS AND COMMENTARIES ON CRIMINAL LAW AND PROCESS OF NEW SOUTH WALES 466 (2011).

⁸⁶ (2005) 222 CLR 67.

⁸⁷ BROWN ET AL., *supra* note 85, at 466 (citing *Cittadini v R* [2009] NSWCCA 302).

⁸⁸ *Capral Aluminium Ltd v Workcover Auth of New South Wales* (2000) 49 NSWLR 610, ¶ 81.

⁸⁹ [1983] 2 AC 161 (HL) 176.

conduct hazard identification, and failure to impart adequate training to its employees about risks.⁹⁰ For a workplace death, a company can be convicted for both overt and hidden (latent) failures to prevent the incident.⁹¹ Covert failures include design failures, insufficient training, and inadequate supervision.⁹² The consequences of covert failures do not become apparent immediately; rather, they are delayed and occur at a later time.⁹³

Proving negligent conduct has always been a difficult issue.⁹⁴ The negligence that merits criminal sanction needs to be gross or wicked negligence in exclusion of simple carelessness and the omission has to be conscious and voluntary to commit MCN. In directing the jury in *R v Nicholls*, Brett J described the high degree of negligence required as “wicked negligence” meaning “negligence so great, that you must be of the opinion that the prisoner had a wicked mind, in the sense that she was reckless and careless whether the creature died or not.”⁹⁵ Whether the accused’s conduct was grossly or wickedly negligent is a question of fact.⁹⁶ An objective test applies to determine the grossness or wickedness of negligence,⁹⁷ so also to determine probability or foreseeability of the risk.⁹⁸

When the defendant is a corporation, the gross negligent conduct will be judged against the standard of care of a reasonable entity.⁹⁹ The objective test¹⁰⁰ is not purely objective when it is applied to manslaughter offences—when that is the case, it is effectively a hybrid test.¹⁰¹ Its objectivity is somewhat diminished in that, in order to assess whether the disputed breach

⁹⁰ [2001] VSC 263; BROWN ET AL., *supra* note 85, at 477.

⁹¹ See Celia Wells et al., *Disasters: A Challenge for the Law*, 39 WASHBURN L.J. 496, 499–501 (2000).

⁹² JAMES REASON, *MANAGING THE RISKS OF ORGANISATIONAL ACCIDENTS* 10 (1997).

⁹³ R.B. WHITTINGHAM, *PREVENTING CORPORATE ACCIDENTS—AN ETHICAL APPROACH* 11 (2008).

⁹⁴ See, e.g., *R v AC Hatrick Chemicals Pty Ltd* (1995) 152 A Crim R 384 (Austl.).

⁹⁵ (1875) 13 Cox CC 75, 76 (Austl.).

⁹⁶ Ron Craig, *Manslaughter as a Result of Workplace Fatalities* 4–5 (1996), <http://freepdfdb.com/pdf/manslaughter-as-a-result-of-workplace-fatality-32108639.html>.

⁹⁷ High Court of Australia in *The Queen v Lavender* (2005) 222 CLR 67, and the Supreme Court of NSW in *R v Taktak* (1988) 14 NSWLR 226.

⁹⁸ *Workcover v Brandown Pty Ltd* [2015] NSWDC 261, ¶ 23.

⁹⁹ Jonathan Clough, *A Glaring Omission? Corporate Liability for Negligent Manslaughter*, 20 AUSTRL. J. LAB. L. 29, 51 (2000).

¹⁰⁰ *The Queen v Lavender* (2005) 222 CLR 67, ¶ 14.

¹⁰¹ *Id.*

occurred, as the NSWCCA in *R v Cornelissen* pronounced, the jury must be directed that the reasonable person under the objective test should be placed in the accused's position.¹⁰² The HCA, in *The Queen v Lavender*, explained that the objective test contemplates:

a reasonable person who possesses the same personal attributes as the accused, that is to say a person of the same age, having the same experience and knowledge as the accused and the circumstances in which he found himself, and having the ordinary fortitude and strength of mind which a reasonable person would have¹⁰³

Consistently, explaining the meaning attributing accused's characteristics to the reasonable person, the New South Wales Supreme Court (NSWSC) most recently held in *R v Thomas* that the reasonable person shall be attributed the awareness and knowledge of the circumstances of the act causing victim's death.¹⁰⁴ The Court further adds as "objectively ascertainable attribute[s]" that the accused's age¹⁰⁵ or a moderate or extreme intellectual disability can also be taken into account in determining whether the reasonable person in the accused's position would have realised that the act involved risks.¹⁰⁶

In *The Queen v Lavender*, the HCA provided further clarity to the objective test:

If there had been some particular fact or circumstance which the [accused] knew, or thought he knew and which contributed to that opinion, and the jury had been informed of that, and the counsel had asked for a direction about it, then it may have been appropriate to invite the jury to take that into account.¹⁰⁷

Therefore, to constitute a breach, the negligent conduct must be grossly or wickedly negligent—a question of fact¹⁰⁸ which must be proven by relying on an objective test.¹⁰⁹ However, foregoing judicial decisions dictate that the objective test is significantly influenced by the subjective elements of the accused. To minimise this subjectivity, the House of Lords ruled that there is

¹⁰² [2004] NSWCCA 449, ¶¶ 82–83. The Court relied upon the dicta ordained in *Wilson v The Queen* (1992) 174 CLR 313, 334.

¹⁰³ (2005) 222 CLR 67, ¶ 14.

¹⁰⁴ [2015] NSWSC 537, ¶¶ 41, 71.

¹⁰⁵ *DPP (Vic) v TY* (2006) 167 A Crim R 596, ¶ 12.

¹⁰⁶ *R v Thomas* [2015] NSWSC 537, ¶ 69.

¹⁰⁷ (2005) 222 CLR 67, ¶ 59.

¹⁰⁸ Craig, *supra* note 96, at 5.

¹⁰⁹ *The Queen v Lavender* (2005) 222 CLR 67, ¶ 59; *R v Taktak* (1988) 14 NSWLR 226.

no need that the accused realised the risk of death or serious bodily harm to the victim or another as long as a sober and reasonable person would have so realised.¹¹⁰ The HCA echoed this view, holding that the Crown is not required to prove the accused's subjective appreciation that "he was being negligent or that he was being negligent to such a high degree."¹¹¹ All of these reinforce the exceedingly high degree of negligence that must be proven in order to convict an accused of MCN—the mere appreciation of risk will not suffice.

When the offence is committed by an individual, the breach of a duty of care by the required degree of negligence has to be proved directly against the accused natural person. With respect to a breach by a company that involves an IR, the breach has to be committed by one or more of the potentially liable natural persons from the user side when it comes to workplace safety.¹¹² Once the breach by an individual has been proved, the prosecution bears the onus to further prove in order to convict a corporation that the breach was committed by the directing mind and will (DM) of the company in accordance with the identification doctrine.¹¹³ This has generally been a challenging part in a prosecution of corporate manslaughter in that the doctrine may shield the company from liability when the breach is committed by an employee who cannot be defined as a DM. The application of the identification doctrine is imperative in common law because vicarious liability does not apply to MCN.¹¹⁴

3. Criminal Breach of a Duty of Care by Companies Applying Identification Doctrine

Lord Blackburn in *The Pharmaceutical Society v. London and Provincial Supply Association Ltd.* expressed the view in 1880 that "... a corporation cannot, in one sense, commit a crime—a corporation cannot be imprisoned"¹¹⁵ Corporations, as an abstraction and artificial entity, cannot commit any offence without using the hands and minds of humans;

¹¹⁰ DPP v. Newbury and Jones [1976] AC 500 (HL) 504.

¹¹¹ *The Queen v Lavender* (2005) 222 CLR 67, ¶ 14.

¹¹² PAGALLO, *supra* note 13, at 71.

¹¹³ Tesco Supermarkets Ltd. v. Nattrass [1972] AC 153 (HL) 170.

¹¹⁴ *R v AC Hatrick Chemicals* (1995) 152 A Crim R 384. *See also* REDMOND, *supra* note 33, at 215–16.

¹¹⁵ (1880) 5 App. Cas. 857 (HL) 861.

they are absolutely dependent upon human agents for their business operations. So a corporation can be liable when humans' conduct is attributed to it. Out of the numerous people that work for a large corporation, some individuals may be regarded as the DM whilst others are treated merely as hands of the entity.¹¹⁶ In *Meridian Global Funds Management Asia Ltd. v. Securities Commission*, Lord Hoffman quoted Denning LJ from *Bolton (Engineering) Co. Ltd. v. Graham & Sons Ltd.* to compare a company to a human body; namely, he stated that a company "has a brain and nerve centre which controls what it does. It also has hands which hold the tools and act in accordance with the direction from the centre."¹¹⁷ A corporation can be held liable for both categories of people behind it—the DM makes the entity primarily liable, while secondary or vicarious liability is levied on the artificial person under the premise of *respondeat superior*¹¹⁸ when its hands (employees other than the DM) commit a wrong in acting within the scope of employment but going beyond the directions of the DM. In spite of the fact that vicarious liability can arise generally from breaches of civil law (torts, contract), common law does not impose such a secondary liability for manslaughter offences—¹¹⁹ though statutes can ascribe such liability on corporations regardless of whether those individuals were authorised to do that act, which is unrelated to this research.¹²⁰ Lord Raymond CJ, in acquitting the corporation from a homicide charge in *R v. Huggins*, ruled that "[h]e only is criminally punishable, who immediately does the act, or permits it to be done."¹²¹ Also, the NSW Court of Appeal held that corporations will not be exposed to vicarious liability for a MCN charge.¹²² Although MCN does not require mens rea as decided in *Attorney-General's Reference (No 2 of 1999)*,¹²³ gross and wicked negligence is sometimes regarded as the mental

¹¹⁶ MARKUS DUBBER & TATJANA HÖRNLE, *CRIMINAL LAW: A COMPARATIVE APPROACH* 331 (Oxford Univ. Press 2014).

¹¹⁷ (1995) 2 AC 500 (PC) 509 (Eng.).

¹¹⁸ Lord Reid stated the rule in these two words in *Staveley Iron & Chemical Co. v. Jones* [1956] AC 627 (HL) 643.

¹¹⁹ However, employees' unlawful conduct can form the basis of vicarious corporate criminal liability in the United States. PINTO & EVANS, *supra* note 17, at 17.

¹²⁰ See PINTO & EVANS, *supra* note 17, at 17; REDMOND, *supra* note 33, at 215–16.

¹²¹ (1730) 2 Str 883, 885.

¹²² See *Presidential Security Services in Australia Pty Ltd v Brilley* (2008) 67 ACSR 692.

¹²³ (2000) 2 All ER 182.

or fault element of the offence.¹²⁴ MCN is an offence of general intent where the accused intended to commit the act in question without having an intention to cause a specific consequence such as death, and when the issue of liability arises in relation to a crime of intent, the intention of its DM is imputed to the corporation.¹²⁵

The act of a corporation, rather than that of its employees, is determined by applying the identification doctrine espoused by the House of Lords in *Lennard's Carrying Co. Ltd. v. Asiatic Petroleum Co. Ltd.*¹²⁶ The acts of certain employees of a company can be regarded as being the acts of the entity itself, hence the company can be held directly or primarily, as opposed to vicariously, liable for those acts.¹²⁷ Regarding attribution of managing director's conduct to the company, the House of Lords in *Lennard's Carrying Co.* rejected the argument that the director's fault could not be that of the company itself.¹²⁸ Hence, the director's conduct was imputed to the company as the conduct of DM.

The House of Lords analysed and applied the identification doctrine in *Tesco Supermarkets Ltd. v. Natrass*,¹²⁹ which established that this doctrine can be applied to all corporate offences excluding those of vicarious liability. The identification doctrine applies to cases where the defendant corporation can be convicted based on "the proof of mens rea provided that the natural person who committed the actus reus of the offence could be identified with the corporation" as its DM.¹³⁰ The HCA confirmed in *Hamilton v Whitehead* that the common law identification theory applies in Australia.¹³¹

The application of the doctrine of identification requires the determination of two things: first, to identify the person who has committed the wrongful act, and second, to determine whether that person "can be said to embody the company's mind and will."¹³² So, in the application of this

¹²⁴ C.C. Turpin, *Mens Rea in Manslaughter*, 20(2) CAMBRIDGE L.J. 200, 207 (1962).

¹²⁵ DUBBER & HÖRNLE, *supra* note 116, at 331.

¹²⁶ [1915] AC 705 (HL).

¹²⁷ See the following English cases: *DPP v. Kent and Sussex Contractors Ltd.* [1944] 1 KB 146; *R v. ICR Haulage Co. Ltd.* [1944] KB at 551; and *Moore v. I. Bresler Ltd.* [1944] 2 All ER 515. For further details, see PINTO & EVANS, *supra* note 17, at 35–39.

¹²⁸ [1915] AC 705 (HL).

¹²⁹ [1972] AC 153 (HL) 153.

¹³⁰ PINTO & EVANS, *supra* note 17, at 42.

¹³¹ (1988) 166 CLR 121.

¹³² James Gobert, *Corporate Criminality: Four Models of Fault*, 14 LEGAL STUD. 393, 395 (1994).

doctrine, the conduct of the natural person who embodies the company must be identified and only his/her conduct can be attributed to the company, which cannot be convicted alone without corresponding conviction of that natural person.¹³³ A single individual, or more than one person acting collectively, such as a board of directors, can be identified as the DM for the purpose of fault element.¹³⁴

Regarding DM eligibility, the House of Lords in *Tesco Supermarkets Ltd.* indicated that only a member of the board of directors can make a corporation criminally liable as its DM.¹³⁵ In declaring that a store manager was not a DM, the House of Lords held that attachment of corporate liability to an act of a person requires that “[t]he person who acts is not speaking or acting *for* the company. He is acting *as* the company and his mind, which directs his acts is the mind of the company. If it is a guilty mind then that guilt is the guilt of the company [emphasis added].”¹³⁶ While considering the appropriate form of mens rea for culpable homicide, “both Lords Hamilton and Osborne went on to conclude that such mens rea may only be brought home to a corporate body by means of the identification principle outlined in *Tesco Supermarkets Ltd.*”¹³⁷ The identification doctrine has been applied more recently in *Transco PLC v. Her Majesty’s Advocate*, which reinforces the importance of this doctrine.¹³⁸ The English courts in the three leading cases of 1944, discussed earlier, attributed the mens rea of senior executives to their respective companies.¹³⁹ The identification doctrine is applicable to all common law crimes including MCN.¹⁴⁰ However, the imputation of mens rea of a senior executive of the company is essential to entity liability.

A further provision regarding omissions allows corporate prosecution even without attribution. Companies can be prosecuted for omissions in two

¹³³ PINTO & EVANS, *supra* note 17, at 51 (citing *A-G’s Reference* (No 2 of 1999) [2002] 2 Cr App R 207, 217).

¹³⁴ James Chalmers, *Corporate Culpable Homicide: Transco Plc v. HM Advocate*, 8 EDINBURGH L. REV. 262, 264 (2004).

¹³⁵ *Tesco Supermarkets Ltd. v. Nattrass* [1972] AC 153 (HL) 170. *See also* PINTO & EVANS, *supra* note 17, at 52.

¹³⁶ *Tesco Supermarkets Ltd. v. Nattrass* [1972] AC 153 (HL) 170 per Lord Reid.

¹³⁷ Chalmers, *supra* note 134, at 264.

¹³⁸ [2004] SCCR 1, 4 (Scot.).

¹³⁹ *See* *DPP v. Kent and Sussex Contractors Ltd.* [1944] 1 KB 146; *R v. ICR Haulage Co. Ltd.* [1944] KB 551; *Moore v. I. Bresler Ltd.* (1944) 22 All ER 515.

¹⁴⁰ *See* PINTO & EVANS, *supra* note 17, at 42.

ways. Firstly, the corporate liability for “omissions” is personal, as held by the English Court of Appeal in *R v. Gateway Foodmarkets Ltd.*¹⁴¹ The same approach was taken by the Court of Appeal in New Zealand in *Linework Ltd. v. Department of Labour*, which held that the company itself may be said to have failed to act, thereby failed to ensure workers’ safety in its own right, so there is no need to attribute someone else’s failure.¹⁴² Secondly, the liability for another person’s omission can be attributed to the company under the theory of DM; however, the two routes are not mutually exclusive.¹⁴³ An action of any employee can be attributed to the company if it falls within the scope of employment and direction of the DM.

The organic theory devised by the House of Lords in *Tesco Supermarkets Ltd v. Nattrass*¹⁴⁴ is widely disputed¹⁴⁵ in that it makes corporate conviction difficult due to the difficulty in determining the DM, particularly in large corporations.¹⁴⁶ Such complexity is evident in several cases—for example, the *Tesco* case itself, and an Australian case of *R v AC Hatrick Chemicals Pty Ltd*, in which the Supreme Court of Victoria ordered an acquittal of the company from the manslaughter charge by accepting an argument that the two employees (a plant engineer and plant manager) who committed the wrongful act did not embody the guiding mind of the entity and their conduct was not grossly negligent either.¹⁴⁷ The identification of the DM should be relatively easier in a small company than its larger counterparts.¹⁴⁸ The difficulty in the application of this doctrine to large companies contributed to the enactment of the *Corporate Manslaughter and Corporate Homicide Act 2007* (UK), which has eased the requirement to

¹⁴¹ (1997) 3 All ER 78, 81–282 per Evans LJ. The appellant company was convicted in 1995 in the Crown Court at Sheffield of an offence under §§ 2(1) and 33(a) of the Health and Safety at Work Act 1974 (UK) and the appeal against conviction was dismissed. *R v. Gateway Foodmarkets Ltd.* (1997) 3 All ER 78, 81–282. See also *R v. Birmingham & Cloucester Railway Co.* [1842] 3 QB 223; Clough, *supra* note 99, at 39–41.

¹⁴² [2001] 2 NZLR 639 at [25] per Blanchard J (N.Z.).

¹⁴³ *Id.* at [43] per Tipping J.

¹⁴⁴ [1972] AC 153 (HL).

¹⁴⁵ See C. Wells, *Corporate Criminal Liability: Developments in Europe and Beyond*, 39(7) LAW SOC’Y J. 62, 64 (2001).

¹⁴⁶ Karen Wheelwright, *Company Directors’ Liability for Workplace Deaths*, 35(4) CRIM. L.J. 223, 225–26 (2011).

¹⁴⁷ (1995) 152 A Crim R 384.

¹⁴⁸ See Wheelwright, *supra* note 146, at 225–27.

identify a DM.¹⁴⁹ The enacted law has significantly contributed to an increased conviction rate in the United Kingdom.¹⁵⁰

With respect to machines like robots, legal scholars consider potential specific failures including: “design defects, manufacturing defects, information defects, and failures to instruct on appropriate uses.”¹⁵¹ Identifying the actor who basically commits the wrong is even more complex, in that the designing, programming, coding, etc. will far exceed the capability of a single individual.¹⁵² Although this is directly relevant to the supply side, the defects and complexities of machines will affect the liability of the user side as well. This is because such complexities will warrant giving risk notifications to workers, arranging adequate training of robots’ operators, ensuring proper maintenance of IRs, carrying out appropriate supervision of robots’ users, etc. So, a breach of the duty of care can be established by proving a breach of any of these duties by the employer. However, many of the individuals who will be entrusted with these tasks might not be identified as a DM. Thus the complexity is clearly compounded by the common law principle that a company cannot be vicariously liable for MCN offences committed by employees other than those who constitute the DM. If the DM was not at fault, corporations would evade liability immediately although the death occurred due to the criminally negligent conduct of an employee whose punishment may not be sufficient to achieve the objectives of criminal justice. Nevertheless, the doctrine is adopted in Australia and applied in NSW.¹⁵³

To conclude, the organic theory makes the entity criminally liable only if the delinquent natural person is regarded as the DM, and at the time of committing the crime he/she had acted *as* the company, rather than *for* the company. In other words, he/she embodied the company, which allows attribution of the natural person’s knowledge and action or inaction to the corporation. Then the negligence is legally considered to be the negligence

¹⁴⁹ For discussions of the merits and flaws of this legislation, see Dorothy Farisani, *Corporate Homicide: What Can South Africa Learn from Recent Developments in English Law?*, 42(2) COMP. & INT’L L.J. S. AFR. 210 (2009); James Gobert, *The Corporate Manslaughter and Corporate Homicide Act 2007—Thirteen years in the making but was it worth the wait?*, 71(3) MOD. L. REV. 413 (2008).

¹⁵⁰ See FIELDFISHER, *supra* note 37.

¹⁵¹ David C. Vladeck, *Machines Without Principals: Liability Rules and Artificial Intelligence*, 89 WASH. L. REV. 117, 130 (2014).

¹⁵² PAGALLO, *supra* note 13, at 69.

¹⁵³ See *North Sydney Council v Roman* (2007) 69 NSWLR 240, ¶ 28.

of the company itself and it is to be established that the accused corporation through that human agent had greatly fallen short of the standard of care of a reasonable entity in the circumstances in which the wrongful conduct was committed. In the case of IRs, both corporations (employers) and their senior executives can be found to have breached the duty where the breach will be committed by a DM, otherwise the liability will be limited to the wrongdoing individuals who cannot be regarded as DM, whose conduct cannot be attributed to the company. Moreover, the criminal breach at hand fundamentally depends on whether conduct represents the required high degree of negligence. A successful finding of breach will call for the causal link between the negligent conduct and the death occurred as a consequence. The following section considers the doctrine of causation.

4. *Proving Causation of Death*

The breach of a duty of care will not attract punishment unless it is proved that the death in question was caused by an act or omission of the accused constituting the breach. The courts in *Justins v R*¹⁵⁴ and *Lane v R*¹⁵⁵ held that it is imperative that the accused's negligent conduct causes death of the deceased.¹⁵⁶ However, in some cases it may not become irrefutably evident that the accused's conduct caused the death. In those cases, the law does provide a solution to such an ambiguity. Common law principles governing causation stipulate that the accused's negligent conduct must be one of the causes of the victim's death and need not be the sole cause.¹⁵⁷ As decided by the NSWCCA in *R v Andrew*, it is not even necessary to prove that the accused's act was the principal cause.¹⁵⁸ Whether a certain act caused the death of the deceased is a question of fact,¹⁵⁹ and so is the identification of the act causing death as held by the NSWCCA in *R v Katarzynski*.¹⁶⁰ If more than one life-threatening cause is found in relation to the victim's death,

¹⁵⁴ (2010) 79 NSWLR 544, ¶ 97 (Austl.).

¹⁵⁵ (2013) 241 A Crim R 321, ¶ 61 (Austl.).

¹⁵⁶ See also *Burns v The Queen* (2012) 246 CLR 334, ¶ 20 per French CJ (Austl.).

¹⁵⁷ *R v. Pagett* (1983) 76 Cr. App. R. 279, 288 (UK).

¹⁵⁸ [2000] NSWCCA 310, ¶ 60.

¹⁵⁹ *Id.*

¹⁶⁰ [2005] NSWCCA 72, ¶ 17. See also *id.* ¶ 18 (describing the right direction to the jury on this issue).

consideration should be given to the determination of whether the accused's negligent conduct was an "operating and substantial" cause of the death.¹⁶¹ The disputed conduct must be "something more than de minimis,"¹⁶² However, it need not be a major cause.¹⁶³ If a breach in the chain of causation is found, the conduct of the accused can still be regarded as satisfying the requirement of being an operating and substantial cause where: "[i]t seems to the court that if at the time of death the original wound is still an operating cause and a substantial cause, then the death can properly be said to be the result of the wound."¹⁶⁴ Notably, "robots do not break the traditional chain of causation as long as these machines are not understood as proper legal persons that can interrupt the causal link between the original agency and the harmful outcome of a chain of events."¹⁶⁵ To prove causation, the "but for test" is considered to be a ground rule which lays down that the death would not have occurred but for the presence of the disputed conduct of the accused.¹⁶⁶

This rule has its critics and its notion may seem ridiculously broad.¹⁶⁷ However, in practice, courts distinguish between *but-for causation* and *legal causation*, and in doing so, they consider whether the accused's negligent conduct was *a cause* (legal causation), instead of looking for all of the potential causes of a given consequence.¹⁶⁸ The HCA in *Royall v R* pronounced that the purpose of the doctrine of causation "is to attribute legal responsibility, not to determine the factors which played a part in the happening of an event or an occurrence."¹⁶⁹

Similar to the determination of breach of duty, the objective test is applied to ascertain whether the accused's conduct was a cause.¹⁷⁰ So, the trier of fact—the jury or the judge in the absence of a jury system—shall

¹⁶¹ *R v Lam & Ors* (2008) 185 A Crim R 453, ¶¶ 64–65 (Austl.); *R v Hallett* [1969] SASR 141, 149 (Austl.).

¹⁶² *R v. Hennigan* (1971) 55 Cr. App. R. 262, 264–65.

¹⁶³ *R v. Pagett* (1983) 76 Cr. App. R. 279, 288 (UK).

¹⁶⁴ *R v. Smith* (1959) 2 QB 35, 42–43.

¹⁶⁵ PAGALLO, *supra* note 13, at 75.

¹⁶⁶ BROWN ET AL., *supra* note 36, at 159.

¹⁶⁷ See DENNIS J. BAKER, GLANVILLE WILLIAMS TEXTBOOK OF CRIMINAL LAW 197 (3d ed. 2012).

¹⁶⁸ BROWN ET AL., *supra* note 36, at 159.

¹⁶⁹ (1991) 172 CLR 378, 412.

¹⁷⁰ *Id.*; see also Gavin Ruddy, *R v Southampton and Fatal Medical Negligence: An Anomaly or a Sign of Things to Come?*, 1 PLYMOUTH L. REV. 81 (2010).

decide if the accused's conduct was a legal or a substantial cause of the victim's death.¹⁷¹ A manslaughter conviction should be awarded once the legal causation is objectively proved beyond reasonable doubt.

Assumedly, legal causation in IRs related cases can be proved without much of a hurdle, in that the attack would generally be serious and visible. However, the "Gordian knot" may arise in some instances, particularly in finding out the reason why the robot had attacked the victim in a circumstance where the employer duly performed its duties. In a case where the required gross negligence of the user side cannot be found, the employer can be sued for simple negligence pursuant to a civil remedy claim. If no negligence on the user side can be found, the manufacturer will have to take the responsibility in a products liability case, and the manufacturer, on its own initiative, will then identify the persons whose fault made the machine defective.¹⁷² Simultaneously, the employer must arrange insurance coverage for its employees.

The liability on both sides of errant robots can be justified by relying on the policy reasons, which state that persons injured, through no fault of their own, should receive redress; similarly, one who benefits from a business should pay; and further, predictable liability risks stimulate innovations.¹⁷³ Therefore, the potential liability should be considered against both sides of the spectrum; however the criminal liability of the supply side has been placed outside the scope of this Article. Now, an obvious question arises as to who should go on trial first.

IV. PERSONS WHO SHOULD GO ON TRIAL

More than one person may be held liable for an offence of MCN in a single suit.¹⁷⁴ Hence, legally, both the employer-company and its individual officers, including supervisors, can be held liable. When the company itself will be held liable for manslaughter, which is a primary liability under common law, the liability of the wrongdoing officer(s) of the company will

¹⁷¹ *Krakouer v Western Australia* [2006] WASCA 81; *R v. Pagett* [1983] 76 Cr. App. R. 279 (UK), as cited in *Royall v R* (1991) 172 CLR 378, 411 (Austl.).

¹⁷² See *Larsen v. Gen. Motors Corp.*, 391 F.2d 495 (8th Cir. 1968).

¹⁷³ For details, see Vladeck, *supra* note 151, at 130.

¹⁷⁴ *Royall v R* (1991) 172 CLR 378, 411 (Austl.).

be accessorial for aiding or abetting the company's crime.¹⁷⁵ In a case where the individual whose negligence will be found to have been an operating and substantial cause of the deceased's demise, but he/she cannot be identified as the DM, that individual will be personally liable, and the company will escape liability because vicarious liability provisions do not apply to common law manslaughter. In the context of robots in particular, Pagallo argues that "when humans reasonably fail to guard against foreseeable harms as provoked by robots, individuals are to be held responsible even when they had no intent to commit the wrong."¹⁷⁶ These general common law principles apply to individuals, and reaching a judicial decision on their direct liability would be relatively easier compared to the liability of the company.

Since our discussion is focused on workplace safety, we recommend that the employer who bears the primary responsibility to ensure safety of its employees should be sued initially. The employer's liability refers to the liability of the entity and its executives. However, the general common law principles and the organic theory discussed earlier will apply.

The employer's liability can be conveniently established in some instances—for example, when the manufacturer has provided adequate warning and instructions regarding safety measures, but the victim's employer has ignored those instructions, it may be possible to show that the employer acted with gross and wicked negligence by exposing its employees to a high risk of death or grievous bodily harm. This may also happen when the manufacturer has made certain disclosures—for example, if the operator of the machine needed training in order to avoid potential danger, but the employer did not allow him/her to undertake the essential training or organise such training before asking the employee to make use of it.¹⁷⁷ In such a case, both the employer-company and the negligent individuals can potentially be held liable. As mentioned previously, an employer can be held liable for both

¹⁷⁵ *R v Goodall* (1975) 11 SASR 94 (Austl.); *Hamilton v Whitehead* (1988) 166 CLR 121 (Austl.). For a discussion of this accessorial liability, see S.M. Solaiman & Lars Bo Langsted, *Crimes Committed by Directors Attributed to Corporations—Why Should Directors be Accessory?: Viewing Through the Complicity Rules in Common Law*, 28 CRIM. L.F. (forthcoming 2017).

¹⁷⁶ PAGALLO, *supra* note 13, at 72.

¹⁷⁷ The employer does have a positive duty to impart adequate training to its employees. Vladeck, *supra* note 151, at 140.

overt and covert failures,¹⁷⁸ which include insufficient training, and inadequate supervision.¹⁷⁹

Workplace safety is subject to both the OHS legislation as well as criminal law in NSW. The *Work Health and Safety Act 2011* (WHS Act 2011) governs the regulatory offences concerning OHS in NSW. Sections 27 to 29 of WHS Act 2011 impose statutory duties on several persons, including the business organisations and their workforce (including officers), to do all that is reasonably practicable to ensure a safe and healthy work environment. Central to all these duties is to take reasonable care to protect oneself and others at work. The officers of an employer have a duty to “exercise due diligence to ensure that the person conducting the business or undertaking complies with that duty or obligation.”¹⁸⁰ Notably, the legislation does not contain any provisions for manslaughter. However, in the event of death occurring at work or being caused by workplace injuries, two alternatives remain open: bringing a criminal charge under the WHS Act 2011 for a regulatory offence, or a manslaughter charge under the *Crimes Act 1900* (NSW), including common law.¹⁸¹ The health and safety regulator and the police will jointly decide the appropriate action, and either invoke the WHS Act 2011 or the criminal law against the wrongdoers.¹⁸²

It is now obvious, not only under the common law principles, but under statutory law, that the employer and its officers have a duty of care to protect workers, and workers also have a duty to protect themselves. The prosecution’s responsibility in such a workplace safety case of MCN should be limited to establishing the elements of the offence analysed above. Although, the common law defence of honest and reasonable mistake of fact does not apply to this offence,¹⁸³ fairness in ascribing criminal liability, as discussed in this Article, lies in the fact that it is neither absolute nor strict liability. Rather, one can be convicted only if gross or wicked negligence

¹⁷⁸ See Wells et al., *supra* note 91, at 499–501.

¹⁷⁹ REASON, *supra* note 92.

¹⁸⁰ *Work Health and Safety Act 2011* (NSW) s 27(1).

¹⁸¹ *The Crimes Act 1900* (NSW) s 18 defines murder and just mentions that all other unlawful homicides are manslaughter. Thus manslaughter is defined in common law. However, *The Crimes Act 1900* (NSW) s 24 provides for penalties of manslaughter.

¹⁸² Wheelwright, *supra* note 146, at 35.

¹⁸³ *R v Wilson* (1992) 174 CLR 313; see also *The Queen v Lavender* (2005) 222 CLR 67, ¶¶ 57–60.

causing the victim's death is proved beyond reasonable doubt, by applying an objective test which embraces several personal attributes of the accused.

In the event of a prosecutorial failure in proving the elements of manslaughter—for example, in a case in which the employer was negligent, but not grossly or wickedly negligent—then the issue has to be dealt with under the OHS legislation and other civil law provisions.

If the machines are found to be faulty, the employer should take the responsibility to sue the manufacturer under tort or contract law. Manufacturers do have a positive duty to make their products safe. In holding an auto manufacturer liable for defective design and construction, the United States Court of Appeals for the Eighth Circuit pronounced that “a manufacturer's duty of design and construction extends to producing a product that is reasonably fit for its intended use and free of hidden defects that could render it unsafe for such use, the issue narrows on the proper interpretation of ‘intended use.’”¹⁸⁴

If no negligence or fault is found on any side, the accident should be deemed to be simply a malfunction of the sophisticated machine causing an accidental death, and it should be brought within the insurance coverage.¹⁸⁵

V. CONCLUSIONS

Manufacturing industries have been using robots in today's world with a trend towards an exponential surge in the usage of such machines in future. They are producing both benefit and harm, the latter of which ranges from bodily harm to death of humans. Time is ripe to ascertain the persons who should be held liable for such irreparable losses in order to minimise them so far as it is possible to do so. Based upon the preceding discussion of manslaughter liability in NSW, it is evident that finding the true culprit of a workplace death inflicted by an IR may not be always an easy task because of the complex and sophisticated nature of the machine.

¹⁸⁴ *Larsen v. Gen. Motors Corp.*, 391 F.2d 495 (8th Cir. 1968).

¹⁸⁵ For details about the remedy and apportionment thereof, see Vladeck, *supra* note 151, at 130. If no fault or negligence can be found on the part of anyone, meanwhile the machine malfunctioned and killed a person, no one may be held liable. For detail, see Curtis E.A. Karnow, *Liability for Distributed Artificial Intelligence*, 11 *BERKELEY TECH. & L.J.* 147 (1996).

It is now, however, judicially recognised that “robots cannot be sued,” even though “they can cause devastating damage.”¹⁸⁶ Accordingly, we regard robots as objects rather than subjects of law. We have briefly negated the need for separate personality of robots for the purposes of criminal liability at this stage, and have argued that both humans and corporations involved in the user side and/or the supply side of such machines should take the responsibility for such deaths. In so doing, we have analysed the common law constituent elements of manslaughter as they apply in Australia.¹⁸⁷ It would be difficult to prove guilt against the corporation owing to the burden of proof regarding the entity’s DM under the common law organic theory. This difficulty relates mostly to the proof of a critical element of MCN being breach of the duty of care by an individual who must have acted *as* the company, rather than *for* the company, as the theory requires the prosecution to prove in order to convict a company. Other requirements of a MCN are: the existence of a duty of care, grossly and wickedly negligent conduct of a human being constituting a breach of the duty of care, and a causal link between death and the negligent conduct. These three factors are considered in light of the conduct of human beings who cause the breach in dispute.

The general findings in this article are that persons who should be tried for manslaughter include the employer corporation, its senior executives, supervisors, and other individuals who had a link to the operation of robots. Of course, the conviction of any individuals should be based on the proof of personal fault, or the required high degree of negligence. If only simple negligence is found, the employer should be held liable under OHS legislation and/or civil law provisions as applicable to the facts. In a case of defective machine, the employer should take the responsibility to sue the manufacturer and recover adequate compensation for the victim’s family in addition to any available compensation to be paid by the employer. Generally, manufacturers are primarily liable to the consumers for defective products, but IRs are purchased by factories and operated by their employees who are entitled to have a well-protected work environment from their employer.

¹⁸⁶ See *United States v. Athlone Indus. Inc.*, 746 F.2d 977, 979 (3d Cir. 1984), *as cited in* Vladeck, *supra* note 151, at 124.

¹⁸⁷ Common law principles are uniform across Australian jurisdictions unless legislation of any particular jurisdiction provides otherwise.

As we have argued regarding the manslaughter liability of a corporation, it is an established fact that the common law identification doctrine is an obstacle to corporate conviction. It has led to the codification of corporate manslaughter law in the United Kingdom in 2007 and has resulted in a significant rise in the conviction rate.¹⁸⁸ A comprehensive study released in November 2014 by Safe Work Australia, an independent statutory agency, found at least 639 work-related fatalities had occurred during 2006-2011 across the country.¹⁸⁹ More recently, there were 118 notable workplace fatalities in just Australia from January to August 2015.¹⁹⁰ The prevailing criminal law plays only a limited role in deterring this serious offence and punishing corporate directors who are directly involved in such losses of lives.¹⁹¹ The need for corporate manslaughter legislation has been advocated by many in the past in Australia.¹⁹² For example, in 2005 a private member bill was tabled in the NSW Parliament in order to create a corporate manslaughter crime with a fine of \$5 million penalty to the corporation and a maximum of 5 years imprisonment to individuals whose conduct would constitute the crime.¹⁹³ This proposal to amend the *Crimes Act 1900* (NSW) did not succeed.¹⁹⁴ The Australian Capital Territory has already introduced industrial manslaughter legislation that is now incorporated in its general criminal law.¹⁹⁵ This Article reiterates the need for corporate manslaughter legislation given the potential severity of robotic malfunctions and the

¹⁸⁸ FIELDFISHER, *supra* note 37.

¹⁸⁹ SAFE WORK AUSTRALIA, WORK-RELATED FATALITIES ASSOCIATED WITH UNSAFE DESIGN OF MACHINERY, PLANT AND POWERED TOOLS 2 (2014), <http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/886/work-related-fatalities-unsafe-design.pdf>. We have contacted the relevant state/territory and federal governmental authorities in Australia for specific number of fatalities caused by robots, but they could not identify them; however, all have impliedly agreed that the figures include robots provoked casualties as well.

¹⁹⁰ SAFE WORK AUSTRALIA, NOTIFIABLE FATALITIES DECEMBER 2015 MONTHLY REPORT 1 (2015), <http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/555/notifiable-fatalities-report-december-2015.pdf>.

¹⁹¹ Wheelwright, *supra* note 146, at 235.

¹⁹² See Des Taylor & Geraldine Mackenzie, *Staying Focused on the Big Picture: Should Australia Legislate for Corporate Manslaughter Based on the UK Model?*, 37(2) CRIM. L.J. 99, 113 (2013), https://eprints.usq.edu.au/22471/3/Taylor_Mackenzie_CLJ_v37_AV.pdf.

¹⁹³ Crimes Amendment (Corporate Manslaughter) Bill 2005 (NSW) (Austl.), <https://www.parliament.nsw.gov.au/Hansard/Pages/HansardResult.aspx#docid/HANSARD-1820781676-65134>.

¹⁹⁴ Crimes Amendment (Corporate Manslaughter) Bill 2005 (NSW) (Austl.), <https://www.parliament.nsw.gov.au/Hansard/Pages/HansardResult.aspx#docid/HANSARD-1820781676-65134>.

¹⁹⁵ *Crimes (Industrial Manslaughter) Amendment Act 2003* pt 2A ss 49A–49E (Austl.).

complexity of the organic theory. The *WHSA 2011* (NSW) does not include manslaughter provision, and the common law provision has a very limited success in prosecuting corporate manslaughter. Thus, it is anticipated that robot-provoked workplace deaths will go unpunished. Punishing workplace deaths caused by criminally negligent conduct under manslaughter law is widely believed to be a critical legal response to the problem.¹⁹⁶ Conviction for workplace deaths under the OHS legislation as a regulatory offence does not mirror the moral denounce to the same degree as it does when convicted of manslaughter under criminal law.¹⁹⁷ Notably, fines, being a common punishment of regulatory offences, alone do not work as a deterrent penalty in OHS as observed by Pritchard,¹⁹⁸ and corporations consider pecuniary penalties as part of doing business.¹⁹⁹

There is no denying the fact that finding the truly blameworthy person in a trial of MCN perpetrated by a robot would be sometimes a difficult task due to inherent scientific uncertainty as to the reason of the machine's malfunction. However, it does not mean that such a serious harm should be ignored by arguing that regulation may hold back innovation.²⁰⁰ The opposite and perhaps more logical view is that "a predictable liability regime may better spur innovation."²⁰¹

Deterrence is the most appropriate theory for crimes involving negligence.²⁰² A 1998 United Kingdom study on health and safety executives revealed that most of the workplace deaths were avoidable and they occurred due to lack of simple planning and precautions.²⁰³ Perhaps most alarmingly, the study unveiled that 70% of 739 deaths investigated over a period of four years could have been avoided if management had taken appropriate precautionary measures.²⁰⁴ We must not wait for more deaths to occur before

¹⁹⁶ Wheelwright, *supra* note 146, at 230.

¹⁹⁷ See, e.g., W.G. Carson, *Some Sociological Aspects of Strict Liability and the Enforcement of Factory Legislation*, 33 MOD. L. REV. 396, 396 (1970).

¹⁹⁸ See Pritchard, *supra* note 16, at 46.

¹⁹⁹ Judy K. Broussard, *The Criminal Corporation: Is Ohio Prepared for Corporate Criminal Prosecutions for Workplace Fatalities?*, 45 CLEV. L. REV. 135, 163 (1997).

²⁰⁰ See, e.g., Bertolini, *supra* note 9, at 215. Some people may argue like this.

²⁰¹ Vladeck, *supra* note 151, at 147; see also Bertolini, *supra* note 9, at 216.

²⁰² Leslie Yalof Garfield, *A More Principled Approach to Criminalising Negligence: A Prescription for the Legislature*, 65 TENN. L. REV. 875, 879–80 (1998).

²⁰³ Wells et al., *supra* note 91, at 932.

²⁰⁴ *Id.*

making a move to make laws for the prevention and punishment of such a serious offence; rather, we need to accept that sooner is better. Special circumstances warrant special legal treatment at all times and in all societies, and it cannot be ignored that IRs have already created that exceptional case worldwide which necessitates appropriate law in NSW that can set forth a good example for others around the world. If we ignore the safety concern today, we will have to submit ourselves to the desire of robots at some point, and then an obvious question shall arise: “should we ever end up in a world ruled by robots?”²⁰⁵

²⁰⁵ Bertolini, *supra* note 9, at 214–16.